

Drinking Water Surveillance Program

**OTTAWA  
(LEMIEUX ISLAND)  
WATER TREATMENT  
PLANT**

Annual Report 1989



Environment  
Environnement

Ontario



**OTTAWA (LEMIEUX ISLAND)  
WATER TREATMENT PLANT**

**DRINKING WATER SURVEILLANCE PROGRAM**

**ANNUAL REPORT 1989**

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**December 1990**



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**PIBS 1379**



## EXECUTIVE SUMMARY

### DRINKING WATER SURVEILLANCE PROGRAM

#### OTTAWA (LEMIEUX ISLAND) WATER TREATMENT PLANT 1989 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, there were 65 supplies being monitored.

The Ottawa (Lemieux Island) Water Treatment Plant is a conventional treatment plant which treats water from the Ottawa River. The Process consists of coagulation, flocculation, sedimentation, filtration, disinfection, post pH adjustment and fluoridation. This plant has a design capacity of  $299 \times 1000 \text{ m}^3/\text{day}$  and in conjunction with the Britannia plant, serves a population of approximately 515,000.

Samples from the Ottawa (Lemieux Island) Water Treatment Plant raw and treated water plus water samples two distribution system sites were taken on a monthly basis and analyzed for approximately 180 parameters. Parameters were divided into the following groups Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticide and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Specific Pesticides and Chlorophenols were analysed in November only.

A summary of results is shown in Table A.

Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were below any applicable health related ODWOS.

Of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

During 1989 the DWSP sampling results indicated that the Ottawa (Lemieux Island) Water Treatment Plant produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE A

## DRINKING WATER SURVEILLANCE PROGRAM    OTTAWA WSS (LEMIEUX ISLAND)

## SUMMARY TABLE BY SCAN

	SCAN	RAW			TREATED			SITE 1			SITE 2		
		TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	36	30	83	36	7	19	33	9	27	33	11	33	
CHEMISTRY (FLD)	39	36	92	72	72	100	141	139	98	125	119	95	
CHEMISTRY (LAB)	240	201	83	240	198	82	411	375	91	370	324	87	
METALS	265	141	53	288	130	45	564	260	46	517	227	43	
CHLORAROMATICS	168	0	0	168	0	0	168	0	0	153	0	0	
CHLOROPHENOLS	6	0	0	6	0	0	0	0	0	0	0	0	
PAH	190	0	0	190	0	0	0	0	0	0	0	0	
PESTICIDES & PCB	395	0	0	408	0	0	343	0	0	296	0	0	
PHENOLICS	12	11	91	12	11	91	-	-	-	-	-	-	
SPECIFIC PESTICIDES	39	0	0	39	0	0	12	0	0	11	0	0	
VOLATILES	348	2	0	348	36	10	319	32	10	319	33	10	
<b>TOTAL</b>	<b>1738</b>	<b>421</b>		<b>1807</b>	<b>454</b>		<b>1991</b>	<b>815</b>		<b>1824</b>	<b>714</b>		

NO KNOWN HEALTH RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE  
 A '-' INDICATES THAT NO SAMPLE WAS TAKEN

## DRINKING WATER SURVEILLANCE PROGRAM

### OTTAWA (LEMIEUX ISLAND) WATER TREATMENT PLANT 1989 ANNUAL REPORT

#### INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, there were 65 supplies being monitored.

The DWSP was initiated at the Ottawa (Lemieux Island) Water Treatment Plant in the fall of 1986. Annual reports were published for 1986 (ISBN 0-7729-2550-X), 1987 and 1988 (ISSN 0840-5204).

This report contains information and results for 1989.

In order to accommodate the increasing number of plants on the DWSP and to facilitate the timely completion of the 1989 annual reports, plants with two or more years of published data will receive an abbreviated annual report. This report maintains the same general format as in previous years but does not include a comprehensive discussion of results. For more detail on the parameters analysed and discussion of results, consult the 1987 and 1988 reports.

## PLANT DESCRIPTION

The Ottawa (Lemieux Island) Water Treatment is a conventional treatment plant which treats water from the Ottawa River. The process consists of coagulation, flocculation, sedimentation, filtration, disinfection, post pH adjustment and fluoridation. Activated sodium silicate is added to enhance the coagulation / flocculation process. It has a design capacity of  $299 \times 1000 \text{ m}^3/\text{day}$  and sample day flows ranging from  $115 \times 1000 \text{ m}^3/\text{day}$  to  $294 \times 1000 \text{ m}^3/\text{day}$ . This plant, in conjunction with the Britannia plant, serves a population of approximately 515,000.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

## SAMPLE LOCATIONS

Water samples were obtained from four DWSP approved locations;

- i) Plant Raw - The water originated from the intake basin prior to chlorination and was sampled through a stainless steel line. The sample tap is located in the plant laboratory.
- ii) Plant Treated - The water originated from the highlift discharge after addition of all treatment chemicals and was sampled through a

FIGURE 1

**DRINKING WATER SURVEILLANCE PROGRAM**  
**SITE LOCATION MAP**

**OTTAWA (LEMIEUX ISLAND) WATER TREATMENT PLANT**

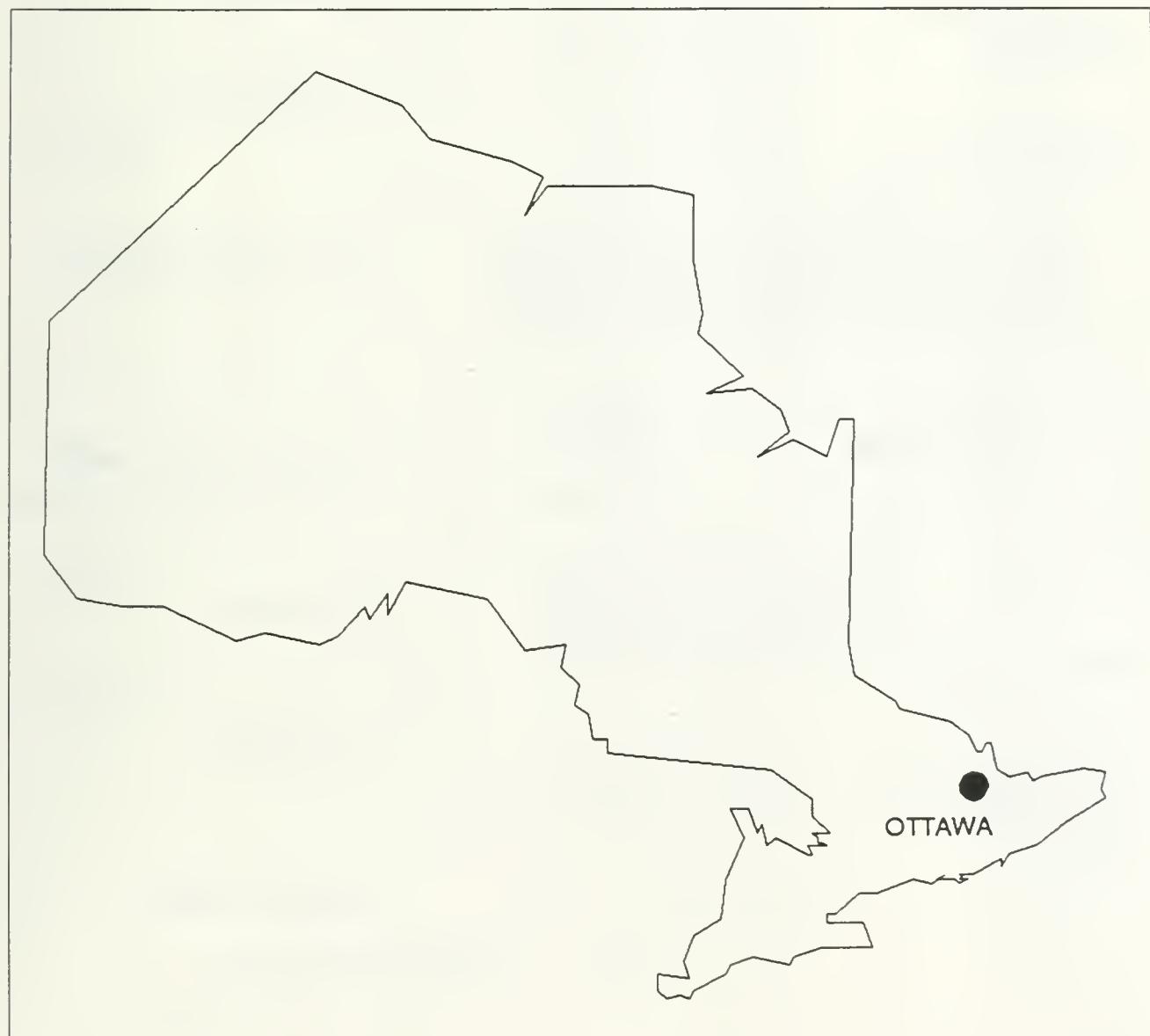


FIGURE 2  
OTTAWA (LEMIEUX ISLAND) WATER TREATMENT PLANT

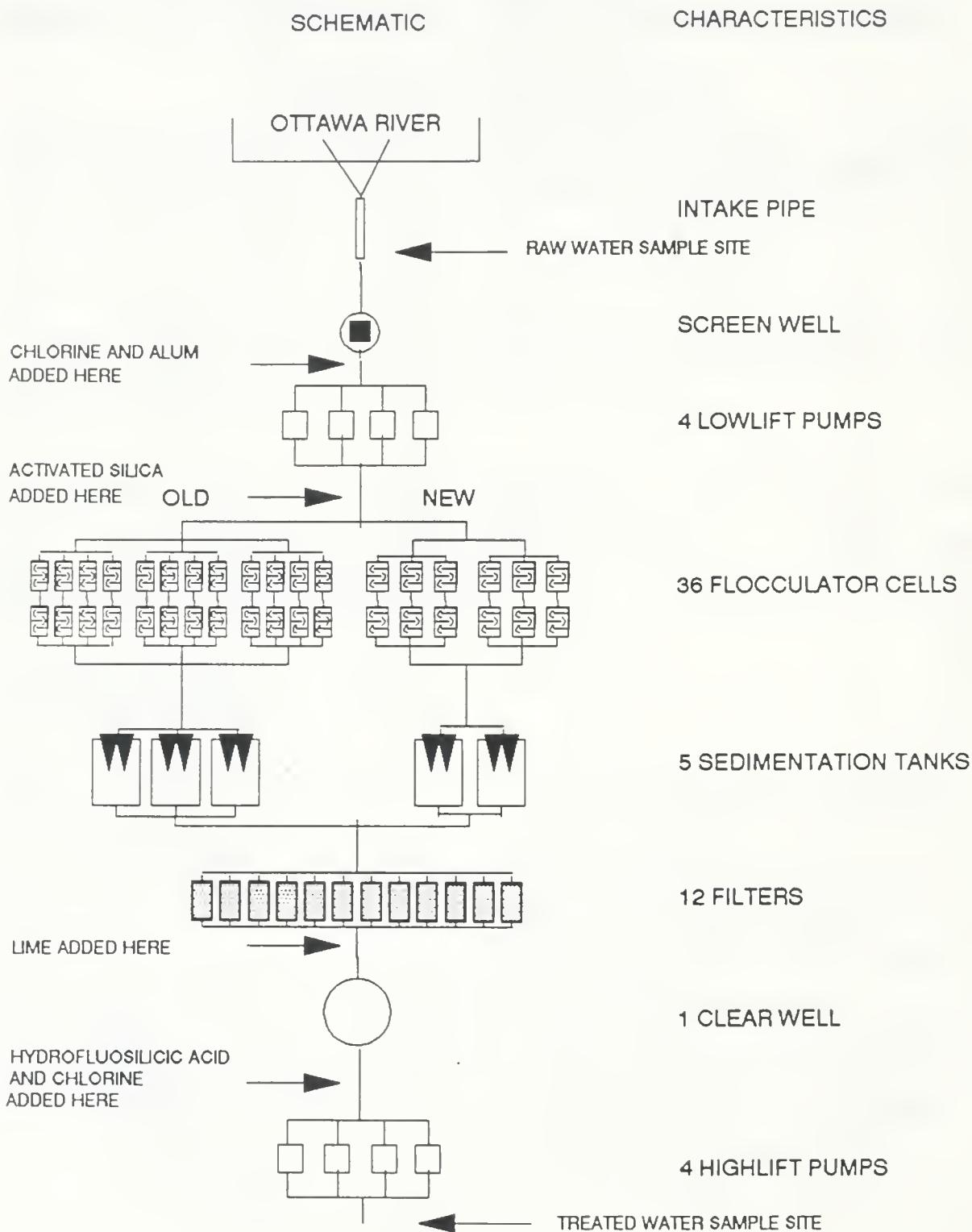


TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT  
IN-PLANT MONITORING OTTAWA (LEMIEUX ISLAND) WTP 1989

<u>PARAMETER</u>	<u>LOCATION</u>	<u>FREQUENCY</u>
Chlorine residual-combined	Mixing chamber Filter effluent Filter influent Plant effluent	daily daily daily daily
total	Filter effluent Plant effluent Mixing chamber	daily continuous daily
Fluoride	Plant effluent	continuous daily
pH	Plant effluent Filter effluent Raw water tap Mixing chamber Treated tap	daily daily daily continuous daily continuous
Residual Aluminum	Treated tap	weekly
Silica	Raw water tap Treated tap	weekly weekly
Turbidity	Raw water tap Filter influent Filter effluent Treated tap	daily continuous daily every 2hrs daily continuous

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

OTTAWA (LEMIEUX ISLAND) WATER TREATMENT PLANT

LOCATION: BAYVIEW ROAD  
LEMIEUX ISLAND  
OTTAWA, ONTARIO  
(613-728-3771)

SOURCE: RAW WATER SOURCE - OTTAWA RIVER

RATED CAPACITY: 298.7 (1000 M<sup>3</sup>/DAY)

OPERATION: MUNICIPAL

PLANT SUPERINTENDENT: L. SCHARFE

MINISTRY REGION: SOUTHEASTERN

DISTRICT OFFICER: MR. R.A. DUNN

<u>MUNICIPALITY SERVED</u>	<u>POPULATION</u>
CITY OF OTTAWA	304,000
GLoucester	76,589
VANIER	18,877
ROCKCLIFFE	2,267
GOULBOURN	9,720
CUMBERLAND	17,008
OSGOODE	9,561

copper sample line. The sample tap is located in the plant laboratory.

iii) Distribution System - Site 1 - This house is approximately 4 kilometers from the plant. Water was sampled through copper plumbing, from the basement laundry tap.

iv) Distribution System - Site 2 - This house is approximately 10 kilometers from the plant. Water was sampled through copper plumbing, from the basement laundry tap.

#### SAMPLING AND ANALYSIS

Plant operating personnel perform analyses on parameters for process control (Table 1).

The Ottawa (Lemieux Island) Water Treatment Plant was sampled for approximately 180 parameters on a monthly basis. The Specific Pesticides and Chlorophenols scans were sampled in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics are only analysed in the raw and treated water from the plant. As of August the triazine pesticides were only analyzed in the raw and treated water. Laboratory analysis was conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

## RESULTS

Field Chemistry measurements were recorded on the day of sampling and were entered onto the DWSP data base as submitted by plant personnel.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 presents parameters analysed in the DWSP.

Associated guidelines and detection limits are also supplied on

tables 5 and 6. Parameters are listed alphabetically within each scan.

#### DISCUSSION

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOS) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS) recently published (ISBN 0-7729-4461 -X) by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Many of the compounds detected are naturally occurring or are treatment by-products.

**IN THIS REPORT, DISCUSSION IS LIMITED TO THE TREATED AND DISTRIBUTED WATER AND ADDRESSES ONLY THOSE PARAMETERS WITH CONCENTRATIONS ABOVE GUIDELINE VALUES AND ORGANICS WITH DETECTED POSITIVE RESULTS.**

Results of treated and distributed water indicate that no applicable health related guideline was exceeded.

## Bacteriology

The ODWO for Standard Plate Count of 500 counts/mL (indicating some deterioration) was exceeded, twice in the treated water in April and June, twice in the Site 1 water in June and July and twice in the Site 2 water in May and June.

## Inorganic and Physical Parameters

### **Colour**

The aesthetic ODWO of 5.00 True Colour Units (TCU) was exceeded in the June treated water sample, the Site 1 water sample and the Site 2 water sample.

### **Aluminum**

The plant operational guideline of 100 µg/L as Al in the water leaving the plant was exceeded eight times in the treated water.

## Organic Parameters

### **Trihalomethanes**

Trihalomethanes (THMs) are acknowledged to be produced during the water treatment process and will always occur in chlorinated waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are

reported for the individual compounds as well as for total THMs. All Total THM occurrences, ranging from 29.0 to 208  $\mu\text{g}/\text{L}$ , were well below the ODWO of 350  $\mu\text{g}/\text{L}$ .

#### CONCLUSIONS

The Ottawa (Lemieux Island) Water Treatment plant for the sample year of 1989 produced good quality water at the plant and this was maintained in the distribution system.

No health related guidelines, for organic or inorganic parameters, were exceeded during 1986, 1987, 1988 or 1989.

TABLE 3  
DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) SAMPLE DAY CONDITIONS FOR 1989

SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)		POST-CHLORINATION		FLUORIDATION		CHLORINE	
DATE	TIME (HRS)	PRE-CHLORINATION	COAGULATION	ACTIVATION	COAGULATION AID	POST PH ADJUSTMENT	HYDROFLUOSILICIC ACID	CALCIUM CARBONATE	SODIUM SILICATE
JAN 25	1.9	252.8	1.00	30.00	3.50	1.75	12.00		.90
FEB 28	1.7	231.1	1.00	30.00	3.00	1.75	12.00		.90
MAR 30	2.3	210.8	1.00	28.00	3.50	1.75	12.00		1.00
APR 26	2.2	214.2	1.40	30.00	4.00	2.00	14.00		.90
MAY 24	2.0	237.1	1.40	26.00	2.00	1.00	12.00		1.00
JUN 26	1.9	263.1	1.60	26.00	2.00	1.00	12.00		1.00
JUL 25	1.5	294.6	2.80	26.00	1.50	.75	12.00		1.00
AUG 29	2.0	240.9	3.00	26.00	2.00	1.00	12.00		.90
SEP 27	2.6	185.6	2.80	26.00	1.50	.75	12.00		1.00
OCT 25	2.0	238.2	2.00	30.00	1.50	.75	12.00		.90
NOV 29	4.4	212.4	1.80	36.00	3.00	1.50	12.00		1.20
DEC 20	7.9	115.5	1.80	34.00	1.00	.50			.90

\* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	12	11	0	·	·	·	·	·	·	·	·	·
	STANDRD PLATE CNT MF	·	·	12	4	0	11	9	0	11	8	0	0
	TOTAL COLIFORM MF	12	7	0	12	0	0	11	0	0	11	0	0
	T COLIFORM BCKGRO MF	12	12	0	12	3	0	11	0	0	11	3	0
*TOTAL SCAN BACTERIOLOGICAL		36	30	0	36	7	0	33	9	0	33	11	0
*TOTAL GROUP BACTERIOLOGICAL		36	30	0	36	7	0	33	9	0	33	11	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	1	0	0	12	12	0	24	24	0	22	21	0
	FLD CHLORINE FREE	1	0	0	12	12	0	21	19	0	17	13	0
	FLD CHLORINE (TOTAL)	1	0	0	12	12	0	24	24	0	22	21	0
	FLD PH	12	12	0	12	12	0	24	24	0	22	22	0
	FLD TEMPERATURE	12	12	0	12	12	0	24	24	0	22	22	0
	FLD TURBIDITY	12	12	0	12	12	0	24	24	0	20	20	0
*TOTAL SCAN CHEMISTRY (FLD)		39	36	0	72	72	0	141	139	0	125	119	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0	23	23	0	21	21	0
	CALCIUM	12	12	0	12	12	0	24	24	0	21	21	0
	CYANIDE	12	0	0	12	0	0	12	0	0	11	0	0
	CHLORIDE	12	12	0	12	12	0	23	23	0	21	21	0
	COLOUR	12	12	0	12	12	0	23	23	0	21	20	1
	CONDUCTIVITY	12	12	0	12	12	0	23	23	0	21	21	0

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE	RAW			TREATED			SITE 1			SITE 2		
			TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	FLUORIDE	12	5	7	12	12	0	23	23	0	21	21	0	0
	HARDNESS	12	12	0	12	12	0	24	24	0	21	21	0	0
	TONCAL	12	12	0	12	12	0	24	23	0	22	21	0	0
	LANGELIERS INDEX	0	0	0	0	0	0	0	0	0	0	1	1	0
	MAGNESIUM	12	12	0	12	12	0	24	24	0	21	21	0	0
	SODIUM	12	12	0	12	12	0	24	24	0	21	21	0	0
	AMMONIUM TOTAL	12	7	3	12	3	6	23	19	3	21	7	7	7
	NITRITE	12	9	2	12	3	8	23	4	19	21	2	19	0
	TOTAL NITRATES	12	12	0	12	12	0	23	23	0	21	21	0	0
	NITROGEN TOT KJELD	12	12	0	12	12	0	24	24	0	21	21	0	0
	PH	12	12	0	12	12	0	23	23	0	21	21	0	0
	PHOSPHORUS FIL REACT	12	2	8	12	5	5	·	·	·	·	·	·	·
	PHOSPHORUS TOTAL	12	10	2	12	7	5	·	·	·	·	·	·	·
	SULPHATE	12	12	0	12	12	0	24	24	0	21	21	0	0
	TURBIDITY	12	12	0	12	12	0	24	24	0	21	21	0	0
*TOTAL SCAN CHEMISTRY (LAB)		240	201	22	240	198	24	411	375	22	370	324	27	
METALS														
	SILVER	11	0	2	12	0	1	24	0	3	22	0	1	
	ALUMINUM	11	11	0	12	12	0	24	24	0	22	22	0	
	ARSENIC	11	8	3	12	2	10	24	5	19	22	2	20	
	BARIUM	11	11	0	12	12	0	24	24	0	22	22	0	
	BORON	11	0	11	12	0	12	24	1	23	22	1	21	
	BERYLLIUM	11	0	4	12	0	4	24	0	5	22	0	5	

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE	TREATED			SITE 1			SITE 2			
			RAW	TOTAL POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	
<b>METALS</b>												
CADMIUM	11	0	2	12	0	2	24	0	6	22	0	5
COBALT	11	9	2	12	7	5	24	0	24	22	0	22
CHROMIUM	11	5	4	12	5	4	24	10	9	22	10	7
COPPER	11	11	0	12	9	3	24	24	0	22	21	1
IRON	11	11	0	12	1	11	24	2	22	22	0	22
MERCURY	12	3	6	12	2	4	12	2	10	11	0	10
MANGANESE	11	11	0	12	12	0	24	24	0	22	22	0
MOLYBDENUM	11	0	11	12	0	12	24	0	24	22	0	22
NICKEL	11	1	10	12	2	9	24	4	17	22	2	16
LEAD	11	10	1	12	7	3	24	24	0	22	19	3
ANTIMONY	11	10	1	12	11	1	24	22	2	22	20	2
SELENIUM	11	0	3	12	0	3	24	0	5	22	0	10
STRONTIUM	11	11	0	12	12	0	24	24	0	22	22	0
TITANIUM	11	11	0	12	12	0	24	22	2	22	20	2
THALLIUM	11	0	3	12	0	4	24	0	2	22	0	8
URANIUM	11	1	10	12	0	6	24	0	10	22	0	10
VANADIUM	11	6	5	12	12	0	24	24	0	22	22	0
ZINC	11	11	0	12	12	0	24	24	0	22	22	0
<b>*TOTAL SCAN METALS</b>		265	141	78	288	130	94	564	260	183	517	227
<b>*TOTAL GROUP INORGANIC &amp; PHYSICAL</b>		544	378	100	600	400	118	1116	774	205	1012	670
<b>CHLOROAROMATICCS</b>		12	0	0	12	0	0	12	0	0	11	0
<b>HEXAChLOROBUTADIENE</b>		12	0	0	12	0	0	12	0	0	11	0
<b>123 TRICHLOROBENZENE</b>		12	0	0	12	0	0	12	0	0	11	0

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (CLEMIEUX)

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE		TREATED		SITE 1		SITE 2	
		RAW	TOTAL POSITIVE TRACE	TOTAL POSITIVE TRACE	TOTAL TRACE	TOTAL POSITIVE TRACE	TOTAL POSITIVE TRACE	TOTAL POSITIVE TRACE	TOTAL POSITIVE TRACE
CHLOROAROMATICS	1234 T-CHLOROBENZENE	12	0	0	12	0	0	12	0
	1235 T-CHLOROBENZENE	12	0	0	12	0	0	11	0
	124 TRICHLOROBENZENE	12	0	0	12	0	0	11	0
	1245 T-CHLOROBENZENE	12	0	0	12	0	0	11	0
	1355 TRICHLOROBENZENE	12	0	0	12	0	0	11	0
	HCB	12	0	0	12	0	0	11	0
	HEXAACHLOROETHANE	12	0	0	12	0	1	12	0
	OCTACHLOROSTYRENE	12	0	0	12	0	0	11	0
	PENTACHLOROBENZENE	12	0	0	12	0	0	11	0
	236 TRICHLOROTOLUENE	12	0	0	12	0	0	11	0
	245 TRICHLOROTOLUENE	12	0	0	12	0	0	11	0
	26A TRICHLOROTOLUENE	12	0	0	12	0	0	11	0
*TOTAL SCAN CHLOROAROMATICS		168	0	0	168	0	1	168	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	1	0	0	1	0	0	1	0
	2345 T-CHLOROPHENOL	1	0	0	1	0	0	1	0
	2356 T-CHLOROPHENOL	1	0	0	1	0	0	1	0
	245-TRICHLOROPHENOL	1	0	0	1	0	0	1	0
	246-TRICHLOROPHENOL	1	0	0	1	0	0	1	0
	PENTACHLOROPHENOL	1	0	0	1	0	0	1	0
*TOTAL SCAN CHLOROPHENOLS		6	0	0	6	0	0	0	0

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE		TREATED		SITE 1		SITE 2		
		RAW	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE
	PAH									
	PHENANTHRENE	12	0	0	12	0	0	0	0	0
	ANTHRAZENE	12	0	0	12	0	0	0	0	0
	FLUORANTHENE	12	0	0	12	0	0	0	0	0
	PYRENE	12	0	0	12	0	0	0	0	0
	BENZO(A)ANTHRAZENE	12	0	0	12	0	0	0	0	0
	CHRYSENE	12	0	0	12	0	0	0	0	0
	DIMETH. BENZ(A)ANTHR	5	0	0	5	0	0	0	0	0
	BENZO(E) PYRENE	12	0	0	12	0	0	0	0	0
	BENZO(B) FLUORANTHREN	12	0	0	12	0	0	0	0	0
	PERYLENE	12	0	0	12	0	0	0	0	0
	BENZO(K) FLUORANTHEN	12	0	0	12	0	0	0	0	0
	BENZO(A) PYRENE	5	0	0	5	0	0	0	0	0
	BENZO(G,H,I) PERYLEN	12	0	0	12	0	0	0	0	0
	DIBENZO(A,H) ANTHRAC	12	0	0	12	0	0	0	0	0
	INDENO(1,2,3-C,D) PY	12	0	0	12	0	0	0	0	0
	BENZO(B) CHRYSENE	12	0	0	12	0	0	0	0	0
	CORONENE	12	0	0	12	0	0	0	0	0
	*TOTAL SCAN PAH	190	0	0	190	0	0	0	0	0
	PESTICIDES & PCB									
	ALDRIN	12	0	0	12	0	0	12	0	0
	ALPHA BHC	12	0	5	12	0	2	12	0	5
	BETA BHC	12	0	0	12	0	0	12	0	0
	LINDANE	12	0	0	12	0	0	12	0	0

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PESTICIDES & PCB	PARAMETER	SITE			TREATED			SITE 1			SITE 2		
			RAW	TOTAL POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
	ALPHA CHLORDANE	12	0	0	12	0	0	12	0	0	11	0	0	0
	GAMMA CHLORDANE	12	0	0	12	0	0	12	0	0	11	0	0	0
	DIEDRIN	12	0	0	12	0	0	12	0	0	11	0	0	0
	METHOXYCHLOR	12	0	0	12	0	0	12	0	0	11	0	0	0
	ENDOSULFAN 1	12	0	0	12	0	0	12	0	0	11	0	0	0
	ENDOSULFAN 11	12	0	0	12	0	0	12	0	0	11	0	0	0
	ENDRIN	12	0	0	12	0	0	12	0	0	11	0	0	0
	ENDOSULFAN SULPHATE	12	0	0	12	0	0	12	0	0	11	0	0	0
	HEPTACHLOR EPOXIDE	12	0	0	12	0	0	12	0	0	11	0	0	0
	HEPTACHLOR	12	0	0	12	0	0	12	0	0	11	0	0	0
	MIREX	12	0	0	12	0	0	12	0	0	11	0	0	0
	OXYCHLORDANE	12	0	0	12	0	0	12	0	0	11	0	0	0
	OPDOT	12	0	0	12	0	0	12	0	0	11	0	0	0
	PCB	12	0	0	12	0	0	12	0	0	11	0	0	0
	ODD	12	0	0	12	0	0	12	0	0	11	0	0	0
	PPDDE	12	0	0	12	0	0	12	0	0	11	0	0	0
	PPDOT	12	0	0	12	0	0	12	0	0	11	0	0	0
	AMETRINE	11	0	0	12	0	0	0	0	7	0	0	5	0
	ATRAZINE	11	0	0	12	0	0	0	0	7	0	0	5	0
	ATRATONE	11	0	0	12	0	0	0	0	7	0	0	5	0
	CYANAZINE (BLADEX)	11	0	0	12	0	0	0	0	7	0	0	5	0
	D-ETHYL ATRAZINE	11	0	0	12	0	0	0	0	7	0	0	5	0
	D-ETHYL SIMAZINE	11	0	0	12	0	0	0	0	7	0	0	5	0
	PROMETONE	11	0	0	12	0	0	0	0	7	0	0	5	0
	PROPAZINE	11	0	0	12	0	0	0	0	7	0	0	5	0

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

TABLE 4

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE	RAW	TREATED			SITE 1			SITE 2		
				TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	PROMERYNE		11	0	0	12	0	0	7	0	0	5
	METRIBUZIN (SENCOR)		11	0	0	12	0	0	7	0	0	5
	SIMAZINE		11	0	0	12	0	0	7	0	0	5
	ALACHLOR (LASSO)		11	0	0	12	0	0	7	0	0	5
	METOLACHLOR		11	0	0	12	0	0	7	0	0	5
*TOTAL SCAN PESTICIDES & PCB		395	0	5	408	0	2	343	0	5	296	0
PHENOLICS		PHENOLICS	12	11	1	12	11	1	•	•	•	•
*TOTAL SCAN PHENOLICS			12	11	1	12	11	1	0	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE		12	0	0	12	0	0	12	0	0	11
	2,4,5-T		1	0	0	1	0	0	0	0	0	0
	2,4-D		1	0	0	1	0	0	0	0	0	0
	2,4-DB		1	0	0	1	0	0	0	0	0	0
	2,4, D PROPIONIC ACID		1	0	0	1	0	0	0	0	0	0
	DICAMBA		1	0	0	1	0	0	0	0	0	0
	PICHLORAM		0	0	0	0	0	0	0	0	0	0
	SILVEX		1	0	0	1	0	0	0	0	0	0
	DAZINON		1	0	0	1	0	0	0	0	0	0
	DICHLOROVOS		1	0	0	1	0	0	0	0	0	0
	CHLORPYRIFOS		1	0	0	1	0	0	0	0	0	0

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

## SUMMARY TABLE OF RESULTS (1989)

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

TABLE 4

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE	RAW	TREATED			SITE 1 TOTAL POSITIVE TRACE	SITE 2 TOTAL POSITIVE TRACE	TOTAL POSITIVE TRACE
				TOTAL	POSITIVE	TRACE			
<b>VOLATILES</b>									
	TOLUENE	12	0	2	12	0	4	11	0
	ETHYLBENZENE	12	0	5	12	0	4	11	0
	P-XYLENE	12	0	0	12	0	0	11	0
	M-XYLENE	12	0	1	12	0	1	11	0
	O-XYLENE	12	0	2	12	0	2	11	0
	STYRENE	12	2	4	12	0	9	11	0
	1,1 DICHLOROETHYLENE	12	0	0	12	0	0	0	0
	METHYLENE CHLORIDE	12	0	0	12	0	0	11	0
	1,1,2DICHLOROETHYLENE	12	0	0	12	0	0	0	0
	1,1 DICHLOROETHANE	12	0	0	12	0	0	0	0
	CHLOROFORM	12	0	10	12	0	12	0	0
	111, TRICHLOROETHANE	12	0	0	12	0	1	11	0
	1,2 DICHLOROETHANE	12	0	0	12	0	0	11	0
	CARBON TETRACHLORIDE	12	0	0	12	0	0	11	0
	1,2 DICHLOROPROPANE	12	0	0	12	0	0	11	0
	TRICHLOROETHYLENE	12	0	0	12	0	0	11	0
	DICHLOROBROMOETHANE	12	0	0	12	0	10	1	11
	112 TRICHLOROETHANE	12	0	0	12	0	0	11	0
	CHLORODIBROMOETHANE	12	0	0	12	0	1	11	0
	T-CHLOROETHYLENE	12	0	0	12	0	1	11	0
	BROMOFORM	12	0	0	12	0	0	11	0
	1122 T-CHLOROETHANE	12	0	0	12	0	0	11	0
	CHLOROBENZENE	12	0	0	12	0	0	11	0
	1,4 DICHLOROBENZENE	12	0	2	12	0	0	11	0
	1,3 DICHLOROBENZENE	12	0	0	12	0	0	11	0

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA (LEMIEUX)

## SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE			SITE								
		RAW	TREATED	TOTAL POSITIVE TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE				
VOLATILES	1,2 DICHLOROBENZENE	12	0	0	12	0	0	11	0				
	ETHYLENE DIBROMIDE	12	0	0	12	0	0	11	0				
	TOTAL TRIFLUOROMETHANES	12	0	2	12	0	11	0	11				
*TOTAL SCAN VOLATILES	348	2	28	348	36	23	319	32	33				
	1158	13	34	1171	47	27	842	32	35				
*TOTAL GROUP ORGANIC								779	33				
									22				
TOTAL		1738	421	134	1807	454	145	1771	815	240	1824	714	236

KEY TO TABLE 5 and 6

A      ONTARIO DRINKING WATER OBJECTIVES (ODWO)

1. Maximum Acceptable Concentration (MAC)
- 1+. MAC for Total Trihalomethanes
- 1\*. MAC for Bacteriological Analyses  
Poor water quality is indicated when :
  - total coliform counts  $> 0 < 5$
  - P/A Bottle Test is present after 48 hours
  - Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
  - Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
  - Standard Plate Count should not exceed 500 organisms per ml at 35 °C within 48 hours
2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
  - hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness  $>200$  mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B      HEALTH & WELFARE CANADA (H&W)

1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, a total)

C      WORLD HEALTH ORGANIZATION (WHO)

1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D      US ENVIRONMENTAL PROTECTION AGENCY (EPA)

1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
5. Maximum Contaminant Level Goal (MCLG)

F      EUROPEAN ECONOMIC COMMUNITY (EEC)

1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissible Concentration (MADC)

G      CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H      USSR MAXIMUM PERMISSIBLE CONCENTRATION

I      NEW YORK STATE AMBIENT WATER GUIDELINE

N/A     NONE AVAILABLE

## INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:

1. Exclude the low-level data because of this uncertainty factor. However, studies of long-term environmental trends and modelling may be adversely affected by exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported qualified by the code "<T". Results quantified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. However the average of such data is still only an estimate of the amount of substance present subject to the possible biases of the method used.

### LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IP	No Data: Insufficient Preservative
!IS	No Data: Insufficient Sample

! LA	No Data: Laboratory Accident
! LD	No Data: Test Queued After Sample Discarded
! NA	No Data: No Authorization To Perform Reanalysis
! NP	No Data: No Procedure
! NR	No Data: Sample Not Received
! OP	No Data: Obscured Plate
! QU	No Data: Quality Control Unacceptable
! PE	No Data: Procedural Error - Sample Discarded
! PH	No Data: Sample pH Outside Valid Range
! RE	No Data: Received Empty
! RO	No Data: See Attached Report (no numeric results)
! SM	No Data: Sample Missing
! SS	No Data: Send Separate Sample Properly Preserved
! UI	No Data: Indeterminant Interference
! TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1	SITE 2		
		STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL		DET'N LIMIT = 0		GUIDELINE = 0 (A1)	
FECAL COLIFORM MF (CT/100ML )					
JAN	14 T48	.	.	.	.
FEB	26 T48	.	.	.	.
MAR	18 <=>	.	.	.	.
APR	44	.	.	.	.
MAY	6	.	.	.	.
JUN	24	.	.	.	.
JUL	2	.	.	.	.
AUG	64	.	.	.	.
SEP	77	.	.	.	.
OCT	140	.	.	.	.
NOV	192	.	.	.	.
DEC	7	.	.	.	.
STANDRD PLATE CNT MF ( )		DET'N LIMIT = 0		GUIDELINE = 500/ML (A1)	
JAN	.	0 <=>	.	24 T24	.
FEB	.	0 <=>	.	13 T24	.
MAR	.	1 <=>	.	19 T48	.
APR	.	2400 >	.	7 <=>	.
MAY	.	420	.	174	.
JUN	.	2400 >	.	3000 >	.
JUL	.	50	.	33000	.
AUG	.	7 <=>	.	450	.
SEP	.	5 <=>	.	280	.
OCT	.	0 <=>	.	16	.
NOV	.	0 <=>	.	.	4 <=>
DEC	.	1 <=>	.	0 <=>	0 <=>
TOTAL COLIFORM MF (CT/100ML )		DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)	
JAN	280 T48	0 T48	.	0 T24	.
FEB	216 T48	0 T48	.	0 T24	.
MAR	660 A3C	0	.	0 T48	.
APR	96 A3C	0	.	0	.
MAY	152	0	.	0	.
JUN	1000 <=>	0	.	0	.
JUL	500 <=>	0	.	0	.
AUG	700 <=>	0	.	0	.
SEP	800 <=>	0	.	0	.
OCT	1200 A3C	0	.	0	.
NOV	500 <=>	0	.	0	.
DEC	100	0	.	0	0
T COLIFORM BCKGRO MF (CT/100ML )		DET'N LIMIT = 0		GUIDELINE = N/A	
JAN	3800 T48	1 T48	.	0 T24	.
FEB	452 T48	0 T48	.	0 T24	.
MAR	48000 >	0	.	0 T48	.

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM AT AWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW

TREATED

SITE 1

SITE 2

STANDING

FREE FLOW

STANDING

FREE FLOW

APR	4240 A3C	0	.	0	.	0
MAY	1320	0	.	0	.	0
JUN	00000 A3C	0	.	0	.	2400 >
JUL	42000 A3C	0	.	0	.	.
AUG	73000 A3C	2	.	0	.	0
SEP	40000 A3C	0	.	0	.	2100 A3C
OCT	46000 A3C	0	.	0	.	0
NOV	86000 A3C	0	.	.	.	0
DEC	840	1	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

RAW		TREATED		SITE 1		SITE 2	
				STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (FLD)							
FLD CHLORINE (COMB) (	)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.	.350		.050	.100	.050	.100
FEB	.	.050		.050	.150	.050	.050
MAR	.	.100		.150	.450	.050	.100
APR	.	.300		.050	.100	.100	.100
MAY	.	.200		.050	.050	.050	.050
JUN	.000	.100		.100	.100	.050	.050
JUL	.	.100		.050	.050	.	.
AUG	.	.050		.050	.100	.000	.050
SEP	.	.100		.050	.200	.100	.150
OCT	.	.100		.100	.150	.050	.100
NOV	.	.050		.100	.100	.100	.150
DEC	.	.200		.050	.100	.050	.050
FLD CHLORINE FREE (	)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.	.850		.150	.500	.	.150
FEB	.	1.300		.	.200	.	.100
MAR	.	1.100		.	.050	.	.100
APR	.	1.000		.150	.450	.	.100
MAY	.	1.100		.	.200	.	.100
JUN	.000	1.400		.000	.150	.000	.050
JUL	.	1.300		.050	.050	.	.
AUG	.	1.400		.050	.100	.000	.000
SEP	.	1.500		.000	.300	.050	.050
OCT	.	1.400		.200	.600	.050	.250
NOV	.	1.100		.050	.650	.150	.300
DEC	.	1.000		.050	.250	.100	.000
FLD CHLORINE (TOTAL) (	)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.	1.200		.200	.600	.050	.250
FEB	.	1.350		.050	.350	.050	.150
MAR	.	1.200		.150	.500	.050	.200
APR	.	1.300		.200	.550	.100	.200
MAY	.	1.300		.050	.250	.050	.150
JUN	.000	1.500		.100	.250	.050	.100
JUL	.	1.400		.100	.100	.	.
AUG	.	1.450		.100	.200	.000	.050
SEP	.	1.600		.050	.500	.150	.200
OCT	.	1.500		.300	.750	.100	.350
NOV	.	1.150		.150	.750	.250	.450
DEC	.	1.200		.100	.350	.150	.050
FLD PH (DMNSLESS )				DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	
JAN	7.000	8.600		7.900	8.400	7.600	8.400
FEB	6.900	7.800		7.400	7.700	7.500	7.600
MAR	6.900	8.300		7.600	7.900	7.500	7.600

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

WATER TREATMENT PLANT					DISTRIBUTION SYSTEM	
RAW	TREATED	SITE 1		SITE 2		
		STANDING	FREE FLOW	STANDING	FREE FLOW	
APR	6.900	8.400	7.700	7.800	7.300	7.800
MAY	7.100	8.100	7.700	7.800	7.700	7.900
JUN	7.000	8.300	7.500	7.500	7.500	7.700
JUL	6.900	8.000	7.200	7.400	·	·
AUG	7.300	8.200	7.700	8.000	7.700	7.500
SEP	7.300	8.000	7.300	7.700	7.700	7.600
OCT	6.900	7.800	7.600	7.700	7.700	7.500
NOV	7.300	8.500	7.500	7.700	7.600	7.800
DEC	7.000	7.500	7.300	7.300	7.300	7.500
FLD TEMPERATURE (DEG.C )		DET'N LIMIT = N/A			GUIDELINE = 15 (A1)	
JAN	3.000	3.500	21.000	3.000	17.000	3.000
FEB	3.000	3.500	21.000	2.000	17.000	5.000
MAR	2.800	3.000	20.000	2.000	19.000	4.000
APR	6.400	6.600	18.000	5.500	18.000	5.000
MAY	15.500	15.000	23.000	14.000	18.000	10.000
JUN	19.500	20.000	26.000	19.000	24.000	14.000
JUL	25.500	24.500	28.000	23.000	·	·
AUG	22.500	22.000	23.000	23.000	23.000	19.000
SEP	17.500	18.000	23.000	18.000	21.000	18.000
OCT	10.000	10.500	21.000	12.000	20.000	14.000
NOV	3.000	3.000	23.000	5.000	16.000	10.000
DEC	2.000	2.500	21.000	4.000	16.000	4.000
FLD TURBIDITY (FTU )		DET'N LIMIT = N/A			GUIDELINE = 1.0 (A1)	
JAN	3.700	.610	.440	.520	.520	.300
FEB	4.500	.510	.300	.420	·	·
MAR	5.900	.500	.370	.660	.300	.380
APR	5.000	.450	.400	.340	.360	.210
MAY	3.600	.350	.290	.380	.200	.240
JUN	3.200	.550	.530	.990	.420	.380
JUL	3.000	.480	.390	.330	·	·
AUG	.900	.420	.300	.210	.340	.310
SEP	2.800	.420	.150	.480	.210	.190
OCT	3.400	.480	.300	.260	.210	.310
NOV	5.300	.560	.380	.520	.240	.280
DEC	1.900	.080	.420	.400	.320	.350

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

WATER TREATMENT PLANT					DISTRIBUTION SYSTEM	
RAW	TREATED	SITE 1		SITE 2		
		STANDING	FREE FLOW	STANDING	FREE FLOW	
CHEMISTRY (LAB)						
ALKALINITY (MG/L )		DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)		
JAN	23.100	29.600	30.500	31.700	33.000	31.800
FEB	22.600	29.000	26.900	27.400	28.200	27.500
MAR	21.700	27.000	27.400	28.300	27.700	27.000
APR	20.100	28.300	24.900	24.500	25.200	25.200
MAY	19.800	23.100	24.300	24.200	25.300	24.600
JUN	18.900	24.000	24.500	23.300	24.300	23.400
JUL	22.600	24.800	26.700	26.100	-	-
AUG	22.500	24.900	24.900	26.200	25.900	25.400
SEP	23.200	23.900	25.600	25.100	26.300	25.400
OCT	27.600	27.500	29.000	29.800	29.900	28.200
NOV	29.900	37.700	32.400	11S	32.000	11S
DEC	25.300	24.900	26.800	25.000	26.600	25.600
CALCIUM (MG/L )		DET'N LIMIT = .100		GUIDELINE = 100 (F2)		
JAN	8.800	18.600	19.400	20.200	20.000	19.800
FEB	9.000	18.400	18.400	18.600	19.000	18.800
MAR	9.600	18.800	19.000	19.400	19.200	19.000
APR	8.600	19.200	17.800	17.600	17.800	17.600
MAY	8.200	17.200	17.000	17.600	18.200	17.600
JUN	8.200	17.200	17.500	16.800	16.600	17.800
JUL	8.000	17.400	18.800	17.800	-	-
AUG	9.400	19.000	18.800	19.200	18.800	17.800
SEP	9.600	18.400	18.800	19.200	19.800	19.000
OCT	9.000	17.000	18.400	19.000	18.800	17.200
NOV	13.600	25.400	23.000	23.400	23.200	11S
DEC	10.900	11.300	13.900	12.400	17.300	17.300
CHLORIDE (MG/L )		DET'N LIMIT = .200		GUIDELINE = 250 (A3)		
JAN	2.200	4.200	4.500	4.400	4.600	4.700
FEB	5.000	5.000	4.700	4.600	4.900	5.500
MAR	3.800	5.600	6.200	5.700	5.700	5.400
APR	2.300	4.200	4.300	4.500	4.400	4.300
MAY	2.300	4.400	4.600	4.500	4.900	4.700
JUN	2.000	4.800	4.900	4.400	4.900	14.200
JUL	2.300	6.100	6.100	5.800	-	-
AUG	2.400	6.200	6.300	6.200	6.400	6.400
SEP	2.700	6.400	6.600	6.400	6.800	6.700
OCT	3.300	6.100	6.100	6.100	6.200	6.200
NOV	4.100	6.400	6.500	11R	6.300	11S
DEC	2.700	5.200	5.300	5.200	5.300	5.200
COLOUR (H2U )		DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)		
JAN	34.500	3.500	4.000	3.500	3.500	4.000
FEB	35.500	3.500	4.000	3.500	4.000	3.500
MAR	36.500	3.500	4.500	4.000	4.000	3.500

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
APR	38.000	4.000	4.000	3.500	4.000
MAY	39.500	4.500	5.000	4.500	4.000
JUN	39.500	5.500	6.000	6.000	6.000
JUL	36.000	3.500	5.000	4.500	.
AUG	30.000	3.500	4.000	4.000	3.500
SEP	31.500	2.500	3.500	3.500	3.000
OCT	32.000	3.000	4.000	3.000	3.000
NOV	37.000	4.500	4.000	11S	11S
DEC	43.500	3.500	4.500	4.000	4.000

CONDUCTIVITY (UMHO/CM ) DET'N LIMIT = 1 GUIDELINE = 400 (F2)

JAN	79	137	142	142	144	143
FEB	80	139	139	138	140	138
MAR	83	140	144	142	142	140
APR	74	141	136	134	137	137
MAY	70	123	127	125	128	126
JUN	66	119	121	119	120	120
JUL	75	132	136	132	.	.
AUG	75	133	133	135	135	134
SEP	79	133	137	135	138	137
OCT	90	145	147	148	148	142
NOV	99	167	164	11S	158	11S
DEC	86	139	146	141	144	142

FLUORIDE (MG/L ) DET'N LIMIT = .01 GUIDELINE = 2.400 (A1)

JAN	.060	.860	.880	.880	.900	.900
FEB	.060	.820	.820	.820	.800	.860
MAR	.040 <T	.820	.840	.800	.840	.860
APR	.060	.880	.880	.880	.920	.920
MAY	.060	.780	.780	.780	.800	.820
JUN	.040 <T	.920	.920	.880	.920	.920
JUL	.060	.940	.960	.940	.	.
AUG	.040 <T	1.000	1.020	1.060	1.040	1.000
SEP	.040 <T	.920	.900	.900	1.040	1.000
OCT	.040 <T	.680	.660	.700	.700	.240
NOV	.040 <T	.540	.600	11S	.640	11S
DEC	.040 <T	.720	.500	.940	.180	.160

HARDNESS (MG/L ) DET'N LIMIT = .500 GUIDELINE = 80-100 (A4)

JAN	32.000	56.000	58.000	60.000	60.000	59.000
FEB	32.000	57.000	56.000	56.000	56.000	56.000
MAR	34.000	57.000	57.000	58.000	58.000	57.000
APR	30.000	56.000	52.000	52.000	53.000	52.000
MAY	28.000	51.000	50.000	52.000	54.000	52.000
JUN	28.000	51.000	56.000	52.000	49.000	52.000
JUL	29.000	53.000	56.000	54.000	.	.
AUG	33.000	57.000	57.000	58.000	57.000	54.000

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

WATER TREATMENT PLANT DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	33.000	56.000	56.000	57.000	59.000
OCT	34.000	53.000	57.000	58.000	59.000
NOV	45.000	75.000	70.000	71.000	70.000
DEC	37.700	38.600	45.100	41.500	53.700
IONCAL (DMNSLESS )		DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	8.072	2.289	3.302	4.133	2.413
FEB	7.646	9.624	11.050	13.150	9.425
MAR	8.011	7.003	5.412	8.530	9.305
APR	9.471	3.509	2.972	2.860	2.563
MAY	.106	2.860	1.100	3.544	2.179
JUN	8.896	7.792	7.565	8.311	2.836
JUL	1.537	4.217	5.109	5.348	.
AUG	6.564	7.102	6.404	6.795	4.806
SEP	5.749	9.330	6.534	9.721	9.259
OCT	4.342	5.002	2.342	.900	.375
NOV	10.380	5.572	4.088	.000 NAF	7.755
DEC	.549	2.351	2.320	2.823	3.101
LANGELIERS INDEX (DMNSLESS )		DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	-1.610	-.373	-.604	-.310	.362
FEB	-1.450	-.908	-.911	-.867	-.827
MAR	-1.511	-.970	-1.131	-1.037	-.931
APR	-1.468	-.811	-.967	-.988	-.942
MAY	-1.643	-1.149	-1.104	-1.079	-1.067
JUN	-1.722	-1.150	-1.105	-1.183	-1.151
JUL	-1.359	-.947	-.873	-.905	.
AUG	-1.391	-.857	-.862	-.562	-.876
SEP	-1.330	-1.049	-.942	-.980	-.928
OCT	-1.168	-.958	-.892	-.876	-.859
NOV	-1.078	-.016	-.774	.	-.793
DEC	-1.171	-1.186	-1.077	-1.185	-.934
MAGNESIUM (MG/L )		DET'N LIMIT = .050		GUIDELINE = 30 (F2)	
JAN	2.400	2.400	2.300	2.400	2.300
FEB	2.400	2.600	2.400	2.400	2.200
MAR	2.400	2.400	2.300	2.500	2.500
APR	2.000	1.900	1.900	1.900	2.000
MAY	1.800	2.000	1.900	2.100	2.000
JUN	1.900	1.900	1.900	2.000	1.900
JUL	2.200	2.300	2.200	2.300	.
AUG	2.300	2.300	2.300	2.300	2.400
SEP	2.200	2.400	2.300	2.300	2.300
OCT	2.700	2.700	2.600	2.600	2.900
NOV	2.800	2.900	2.900	3.000	3.000
DEC	2.550	2.550	2.500	2.550	1.1S
					2.650

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
		DET'N LIMIT = .200		GUIDELINE = 200 (C3)	
<b>SODIUM (MG/L )</b>					
JAN	2.600	2.800	3.000	3.000	3.000
FEB	3.200	3.800	3.400	3.800	3.400
MAR	2.000	2.400	2.600	2.500	3.000
APR	2.200	3.000	2.800	2.800	3.000
MAY	2.000	2.200	2.400	2.400	2.800
JUN	2.000	1.800	2.200	2.200	1.800
JUL	2.000	2.000	2.200	2.200	.
AUG	2.200	2.400	2.400	2.600	2.400
SEP	2.600	3.000	3.000	3.000	2.800
OCT	3.400	3.600	3.400	3.400	3.600
NOV	3.000	3.200	3.200	3.600	!IS
DEC	1.500	11.100	8.300	10.200	4.400
<b>AMMONIUM TOTAL (MG/L )</b>					
		DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)	
JAN	.038	.006 <T	.152	.014	BDL
FEB	.074	.002 <T	.096	.048	.004 <T
MAR	.086	.032	.022	.048	.002 <T
APR	.040	.024	.136	.010	.008 <T
MAY	.030	.004 <T	.176	.010	.006 <T
JUN	.024	.012	.012	.024	.022
JUL	.012	.002 <T	.128	.014	.
AUG	.002 <T	.002 <T	.058	.004 <T	.012
SEP	.006 <T	.002 <T	.032	.002 <T	.004 <T
OCT	BDL	BDL	.068	.002 <T	.012
NOV	BDL	BDL	.322	!IS	.004 <T
DEC	.002 <T	BDL	.222	BDL	BDL
<b>NITRITE (MG/L )</b>					
		DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
JAN	.007	.003 <T	.003 <T	.003 <T	.003 <T
FEB	.005	.002 <T	.002 <T	.001 <T	.002 <T
MAR	.011	.006	.007	.006	.006
APR	.009	.006	.005	.004 <T	.004 <T
MAY	.006	.001 <T	.002 <T	.001 <T	.002 <T
JUN	.005	.008	.003 <T	.003 <T	.004 <T
JUL	BDL	BDL	.004 <T	.004 <T	.
AUG	.003 <T	.001 <T	.002 <T	.001 <T	.002 <T
SEP	.004 <T	.003 <T	.002 <T	.002 <T	.002 <T
OCT	.008	.001 <T	.005	.004 <T	.002 <T
NOV	.010	.001 <T	.003 <T	!IS	.002 <T
DEC	.006	.001 <T	.002 <T	.002 <T	.002 <T
<b>TOTAL NITRATES (MG/L )</b>					
		DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)	
JAN	.215	.215	.395	.240	.205
FEB	.220	.215	.345	.260	.240
MAR	.270	.265	.270	.265	.285
APR	.200	.205	.375	.240	.225

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

WATER TREATMENT PLANT						DISTRIBUTION SYSTEM	
RAW	TREATED	SITE 1		SITE 2			
		STANDING	FREE FLOW	STANDING	FREE FLOW		
MAY	.170	.170	.405	.200	.190	.170	
JUN	.165	.155	.170	.155	.190	.150	
JUL	.070	.055	.330	.130	.	.	
AUG	.130	.135	.205	.135	.160	.095	
SEP	.175	.175	.235	.160	.205	.160	
OCT	.220	.210	.310	.230	.265	.215	
NOV	.275	.260	.690	11S	.280	11S	
DEC	.345	.340	.610	.355	.335	.320	
NITROGEN TOT KJELD (MG/L)		DET'N LIMIT = .020		GUIDELINE = N/A			
JAN	.360	.180	.350	.200	.170	.190	
FEB	.400	.180	.320	.210	.190	.180	
MAR	.460	.250	.250	.280	.250	.230	
APR	.420	.210	.350	.210	.220	.190	
MAY	.450	.190	.370	.240	.180	.240	
JUN	.370	.190	.210	.220	.210	.230	
JUL	.330	.160	.340	.200	.	.	
AUG	.300	.160	.230	.160	.210	.160	
SEP	.330	.160	.220	.180	.190	.170	
OCT	.330	.140	.230	.150	.180	.150	
NOV	.370	.170	.580	.200	.190	11S	
DEC	.370	.210	.470	.210	.200	.200	
PH (DMNSLESS )		DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)			
JAN	7.430	8.260	8.000	8.260	8.920	8.390	
FEB	7.590	7.740	7.770	7.800	7.820	7.820	
MAR	7.520	7.700	7.530	7.600	7.720	7.680	
APR	7.640	7.830	7.760	7.750	7.780	7.770	
MAY	7.490	7.620	7.650	7.660	7.640	7.680	
JUN	7.430	7.600	7.630	7.590	7.610	7.590	
JUL	7.730	7.790	7.800	7.800	.	.	
AUG	7.630	7.840	7.840	8.110	7.810	7.810	
SEP	7.670	7.680	7.750	7.710	7.730	7.720	
OCT	7.790	7.750	7.760	7.750	7.770	7.760	
NOV	7.670	8.390	7.740	11S	7.720	11S	
DEC	7.740	7.740	7.730	7.700	7.780	7.750	
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = .0005		GUIDELINE = N/A			
JAN	.001 <T	.001 <T	.	.	.	.	
FEB	.002	.002 <T	.	.	.	.	
MAR	.004	.005	.	.	.	.	
APR	.001 <T	.006	.	.	.	.	
MAY	BDL	.002	.	.	.	.	
JUN	.000 <T	BDL	.	.	.	.	
JUL	.002 <T	.001 <T	.	.	.	.	
AUG	.001 <T	.004	.	.	.	.	
SEP	BDL	BDL	.	.	.	.	

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	.002 <T	.004	.	.	.
NOV	.002 <T	.001 <T	.	.	.
DEC	.001 <T	.000 <T	.	.	.
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = .002		GUIDELINE = .40 (F2)	
JAN	.011	.009 <T	.	.	.
FEB	.014	.009 <T	.	.	.
MAR	.018	.011	.	.	.
APR	.020	.016	.	.	.
MAY	.013	.013	.	.	.
JUN	.008 <T	.006 <T	.	.	.
JUL	.011	.012	.	.	.
AUG	.008 <T	.014	.	.	.
SEP	.014	.013	.	.	.
OCT	.015	.009 <T	.	.	.
NOV	.020	.014	.	.	.
DEC	.012	.007 <T	.	.	.
SULPHATE (MG/L)		DET'N LIMIT = .200		GUIDELINE = 500. (A3)	
JAN	7.540	23.670	23.610	24.370	23.180
FEB	6.060	21.480	21.550	21.490	21.520
MAR	7.310	21.330	21.410	21.100	21.570
APR	7.260	24.260	23.820	23.570	24.500
MAY	8.300	23.510	23.500	23.600	24.170
JUN	7.430	18.650	19.530	19.920	19.070
JUL	7.510	20.470	20.880	20.150	.
AUG	8.680	22.900	22.620	22.630	22.780
SEP	8.590	22.520	22.470	22.610	22.320
OCT	9.310	26.480	25.970	25.810	25.810
NOV	10.020	28.990	29.160	28.560	28.590
DEC	9.980	26.830	27.700	27.150	28.730
TURBIDITY (FTU)		DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)	
JAN	3.400	.520	.500	.880	.910
FEB	3.800	.380	.420	.520	.330
MAR	5.200	.350	.420	.520	.460
APR	5.300	.830	.430	.480	.290
MAY	1.700	.800	.160	.180	.110
JUN	2.900	.800	.670	.640	.340
JUL	1.880	.910	.910	.760	.
AUG	1.080	.410	.360	.690	.540
SEP	3.300	.760	1.010	.960	.450
OCT	4.500	.480	.350	.570	.470
NOV	5.500	.650	.830	1.790	.770
DEC	1.580	.740	.660	.620	.530

RRV

.090

.330

.480

.420

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
<b>METALS</b>					
SILVER (UG/L)	)		DET'N LIMIT = .020	GUIDELINE = 50. (A1)	
JAN	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	BDL	BDL	BDL
MAR	BDL	BDL	.030 <T	BDL	BDL
APR	.030 <T	.040 <T	.080 <T	BDL	.040 <T
MAY	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL
JUL	1SM	BDL	BDL	BDL	-
AUG	BDL	BDL	BDL	.030 <T	BDL
SEP	.030 <T	BDL	BDL	BDL	BDL
OCT	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL	BDL
DEC	BDL	BDL	BDL	BDL	BDL
<b>ALUMINUM (UG/L)</b>					
	)		DET'N LIMIT = .050	GUIDELINE = 100.(A4)	
JAN	162.400	197.200	174.000	220.400	185.600
FEB	174.000	185.600	127.600	162.400	139.200
MAR	220.400	127.600	127.600	116.000	127.600
APR	174.000	127.600	111.360	113.680	116.000
MAY	200.000	92.000	110.000	97.000	92.000
JUN	140.000	140.000	170.000	150.000	150.000
JUL	1SM	94.000	150.000	120.000	-
AUG	91.000	88.000	85.000	94.000	79.000
SEP	120.000	73.000	82.000	80.000	82.000
OCT	120.000	160.000	100.000	120.000	79.000
NOV	130.000	260.000	130.000	150.000	220.000
DEC	89.000	110.000	88.000	96.000	120.000
<b>ARSENIC (UG/L)</b>					
	)		DET'N LIMIT = 0.050	GUIDELINE = 50.0 (A1)	
JAN	1.100	.380 <T	.440 <T	.510 <T	.570 <T
FEB	1.700	.810 <T	.550 <T	.660 <T	.700 <T
MAR	1.600	.840 <T	.660 <T	.730 <T	.690 <T
APR	1.200	.870 <T	.610 <T	.750 <T	.730 <T
MAY	.920 <T	.800 <T	.370 <T	.750 <T	.520 <T
JUN	1.600	1.300	1.200	1.100	1.100
JUL	1SM	1.000 <T	1.100	.900 <T	-
AUG	1.600	1.300	1.200	1.200	1.100
SEP	1.100	.560 <T	.630 <T	.590 <T	.600 <T
OCT	1.000 <T	.410 <T	.580 <T	.580 <T	.290 <T
NOV	.800 <T	.460 <T	.470 <T	.400 <T	.450 <T
DEC	1.100	.340 <T	.290 <T	.450 <T	.250 <T
<b>BARIUM (UG/L)</b>					
	)		DET'N LIMIT = 0.020	GUIDELINE = 1000. (A1)	
JAN	17.000	16.000	18.000	16.000	19.000
FEB	17.000	16.000	19.000	15.000	19.000
MAR	18.000	16.000	19.000	16.000	20.000

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
		-----			
APR	16.000	15.000	15.000	15.000	15.000
MAY	20.000	18.000	20.000	19.000	18.000
JUN	19.000	18.000	21.000	20.000	21.000
JUL	1SM	17.000	20.000	18.000	.
AUG	16.000	15.000	15.000	15.000	16.000
SEP	17.000	17.000	15.000	15.000	15.000
OCT	18.000	17.000	17.000	16.000	16.000
NOV	20.000	18.000	21.000	17.000	22.000
DEC	18.000	17.000	19.000	16.000	18.000

BORON (UG/L) ) DET'N LIMIT = 0.200 GUIDELINE = 5000. (A1)

JAN	3.200 <T	8.700 <T	18.000 <T	4.700 <T	8.100 <T	4.400 <T
FEB	17.000 <T	14.000 <T	8.800 <T	3.700 <T	12.000 <T	13.000 <T
MAR	13.000 <T	7.800 <T	32.000	14.000 <T	11.000 <T	26.000
APR	12.000 <T	14.000 <T	6.200 <T	14.000 <T	9.300 <T	14.000 <T
MAY	3.100 <T	5.800 <T	5.200 <T	4.700 <T	5.500 <T	2.500 <T
JUN	7.200 <T	6.800 <T	7.000 <T	5.400 <T	7.400 <T	7.700 <T
JUL	1SM	7.900 <T	8.800 <T	8.100 <T	.	.
AUG	15.000 <T	12.000 <T	11.000 <T	11.000 <T	10.000 <T	11.000 <T
SEP	10.000 <T	7.800 <T	10.000 <T	8.600 <T	11.000 <T	8.800 <T
OCT	5.800 <T	6.200 <T	7.000 <T	7.000 <T	7.400 <T	5.800 <T
NOV	6.200 <T	6.000 <T	6.500 <T	6.900 <T	7.300 <T	6.300 <T
DEC	4.600 <T	4.900 <T	5.700 <T	5.700 <T	5.800 <T	5.300 <T

BERYLLEIUM (UG/L) ) DET'N LIMIT = 0.010 GUIDELINE = N/A

JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	.110 <T	.060 <T	.150 <T	.120 <T	.060 <T	.090 <T
MAR	.030 <T	.030 <T	BDL	BDL	BDL	BDL
APR	.070 <T	.050 <T	BDL	BDL	BDL	.130 <T
MAY	BDL	BDL	.110 <T	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	.070 <T
JUL	1SM	.030 <T	.040 <T	.020 <T	.	.
AUG	.020 <T	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	BDL	BDL	BDL	BDL
OCT	BDL	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL	BDL	.030 <T
DEC	BDL	BDL	BDL	BDL	BDL	BDL

CADMIUM (UG/L) ) DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)

JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	BDL	BDL	BDL	BDL
MAR	BDL	BDL	BDL	BDL	BDL	BDL
APR	.080 <T	.070 <T	BDL	BDL	.090 <T	.060 <T
MAY	.170 <T	.170 <T	.140 <T	.210 <T	.100 <T	.070 <T
JUN	BDL	BDL	.060 <T	.080 <T	BDL	BDL
JUL	1SM	BDL	.190 <T	.070 <T	.	.
AUG	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	BDL	BDL	BDL	BDL	BDL
OCT	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	.230 <T	BDL
DEC	BDL	BDL	BDL	BDL	BDL
COBALT (UG/L )		DET'N LIMIT = 0.020 GUIDELINE = N/A			
JAN	10.000	11.000	.130 <T	.120 <T	.080 <T
FEB	7.900	37.000	.170 <T	.130 <T	.110 <T
MAR	8.100	16.000	.280 <T	.220 <T	.140 <T
APR	7.800	9.800	.140 <T	.160 <T	.130 <T
MAY	12.000	11.000	.240 <T	.210 <T	.170 <T
JUN	22.000	9.400	.420 <T	.440 <T	.470 <T
JUL	ISM	14.000	.170 <T	.140 <T	.
AUG	4.200	.190 <T	.160 <T	.180 <T	.150 <T
SEP	3.100	.080 <T	.040 <T	.090 <T	.050 <T
OCT	2.300	.150 <T	.120 <T	.150 <T	.170 <T
NOV	.230 <T	.140 <T	.130 <T	.130 <T	.250 <T
DEC	.130 <T	.160 <T	.090 <T	.080 <T	.110 <T
CHROMIUM (UG/L )		DET'N LIMIT = 0.100 GUIDELINE = 50. (A1)			
JAN	.260 <T	.520 <T	1.300	BDL	.270 <T
FEB	1.800	1.400	.510 <T	BDL	1.200
MAR	.170 <T	BDL	.110 <T	BDL	BDL
APR	1.300	1.300	.240 <T	1.200	.680 <T
MAY	.920 <T	1.400	1.100	1.400	1.500
JUN	1.300	.860 <T	.910 <T	.240 <T	.950 <T
JUL	ISM	1.300	1.500	1.500	.
AUG	1.700	1.200	1.200	1.300	1.100
SEP	1.700	.990 <T	1.400	1.100	1.700
OCT	.560 <T	.420 <T	1.000 <T	.850 <T	.920 <T
NOV	BDL	BDL	BDL	2.400	BDL
DEC	BDL	BDL	.640 <T	.560 <T	.670 <T
COPPER (UG/L )		DET'N LIMIT = .100 GUIDELINE = 1000 (A3)			
JAN	12.000	.960 <T	24.000	1.600	16.000
FEB	13.000	1.100	48.000	2.700	19.000
MAR	16.000	1.300	25.000	2.100	18.000
APR	14.000	.830 <T	25.000	1.600	8.300
MAY	23.000	1.200	23.000	2.300	2.000
JUN	28.000	1.900	16.000	2.800	24.000
JUL	ISM	2.600	26.000	3.300	.
AUG	32.000	2.000	13.000	2.800	15.000
SEP	25.000	2.100	19.000	3.200	15.000
OCT	21.000	1.500	24.000	2.700	8.300
NOV	11.000	1.100	46.000	2.700	15.000
DEC	12.000	1.800 <T	85.000	6.800	17.000

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
IRON (UG/L)		DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)			
JAN	230.000	51.000	26.000 <T	47.000 <T	29.000 <T
FEB	210.000	31.000 <T	38.000 <T	37.000 <T	19.000 <T
MAR	210.000	22.000 <T	31.000 <T	34.000 <T	7.300 <T
APR	250.000	22.000 <T	25.000 <T	20.000 <T	7.600 <T
MAY	190.000	25.000 <T	24.000 <T	32.000 <T	14.000 <T
JUN	190.000	34.000 <T	30.000 <T	69.000	26.000 <T
JUL	ISM	28.000 <T	36.000 <T	36.000 <T	.
AUG	100.000	24.000 <T	32.000 <T	21.000 <T	15.000 <T
SEP	160.000	7.700 <T	18.000 <T	28.000 <T	12.000 <T
OCT	200.000	32.000 <T	29.000 <T	33.000 <T	21.000 <T
NOV	200.000	33.000 <T	23.000 <T	67.000	25.000 <T
DEC	180.000	7.000 <T	25.000 <T	36.000 <T	9.200 <T
MERCURY (UG/L)		DET'N LIMIT = 0.010 GUIDELINE = 1.000 (A1)			
JAN	.070	.050 <T	.	.030 <T	.
FEB	.140	.170	.	.030 <T	.
MAR	BDL	BDL	.	.030 <T	.
APR	BDL	BDL	.	.030 <T	.
MAY	.020 <T	BDL	.	.040 <T	.
JUN	.020 <T	BDL	.	.040 <T	.
JUL	BDL	BDL	.	.040 <T	.
AUG	.020 <T	BDL	.	.040 <T	.
SEP	.030 <T	.030 <T	.	.040 <T	.
OCT	.040 <T	.030 <T	.	.100	.
NOV	.030 <T	.030 <T	.	.040 <T	.
DEC	.060	.060	.	.060	.
MANGANESE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)			
JAN	19.000	17.000	5.700	8.000	6.500
FEB	17.000	38.000	5.000	7.500	7.300
MAR	19.000	23.000	5.500	9.800	6.900
APR	21.000	20.000	6.800	8.300	6.900
MAY	25.000	17.000	4.500	8.200	5.600
JUN	34.000	24.000	10.000	28.000	16.000
JUL	ISM	18.000	19.000	11.000	.
AUG	12.000	7.600	6.600	4.900	5.900
SEP	22.000	5.500	2.800	5.200	5.100
OCT	17.000	7.600	4.300	6.900	6.100
NOV	16.000	11.000	3.900	12.000	7.300
DEC	12.000	4.900	3.000	3.600	4.000
MOLYBDENUM (UG/L)		DET'N LIMIT = 0.020 GUIDELINE = N/A			
JAN	.170 <T	.150 <T	.150 <T	.210 <T	.150 <T
FEB	.370 <T	.350 <T	.330 <T	.330 <T	.380 <T
MAR	.460 <T	.390 <T	.360 <T	.180 <T	.300 <T
APR	.180 <T	.240 <T	.210 <T	.230 <T	.230 <T

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
MAY	.350 <T	.370 <T	.450 <T	.490 <T	.230 <T
JUN	.360 <T	.330 <T	.310 <T	.440 <T	.340 <T
JUL	1SM	.350 <T	.380 <T	.340 <T	.
AUG	.380 <T	.280 <T	.260 <T	.300 <T	.310 <T
SEP	.210 <T	.150 <T	.220 <T	.170 <T	.210 <T
OCT	.200 <T	.170 <T	.150 <T	.150 <T	.170 <T
NOV	.170 <T	.210 <T	.160 <T	.180 <T	.200 <T
DEC	.180 <T	.220 <T	.200 <T	.160 <T	.200 <T
NICKEL (UG/L)		DET'N LIMIT = 0.100 GUIDELINE = 50. (F3)			
JAN	.570 <T	.110 <T	BDL	BDL	BDL
FEB	.870 <T	.470 <T	.300 <T	.130 <T	.250 <T
MAR	1.200 <T	.710 <T	.680 <T	.700 <T	.490 <T
APR	1.200 <T	.650 <T	.440 <T	.570 <T	.510 <T
MAY	1.800 <T	2.500	2.800	2.100	1.800 <T
JUN	2.900	4.200	4.100	4.300	4.000
JUL	1SM	.630 <T	.660 <T	.440 <T	.
AUG	.810 <T	.410 <T	.480 <T	.480 <T	.460 <T
SEP	1.200 <T	.490 <T	.200 <T	.210 <T	.200 <T
OCT	1.500 <T	.610 <T	.570 <T	.650 <T	.580 <T
NOV	.660 <T	BDL	BDL	.360 <T	.650 <T
DEC	.620 <T	.320 <T	.400 <T	.220 <T	BDL
LEAD (UG/L)		DET'N LIMIT = 0.050 GUIDELINE = 50. (A1)			
JAN	.450	.150 <T	4.900	1.300	1.400
FEB	.420	.350	11.000	1.300	1.600
MAR	.580	.320	8.200	1.300	2.300
APR	.660	.240	4.800	1.200	.930
MAY	.620	.040 <T	7.800	1.800	.370
JUN	.850	.330	10.000	3.900	3.900
JUL	1SM	.400	9.000	4.100	.
AUG	.510	.210	14.000	3.800	1.300
SEP	1.900	.090 <T	6.500	3.500	1.400
OCT	75.000 RRV	.720	13.000	2.600	.910
NOV	.350	BDL	13.000	4.500	20.000
DEC	.410 <T	BDL	9.700	2.400	1.400
ANTIMONY (UG/L)		DET'N LIMIT = .050 GUIDELINE = 146. (D4)			
JAN	14.000	19.000	.460	.480	.450
FEB	12.000	76.000	.710	.630	.670
MAR	13.000	36.000	.910	.780	.870
APR	11.000	19.000	.510	.530	.530
MAY	23.000	21.000	.850	.780	.430
JUN	38.000	18.000	1.000	.900	.940
JUL	1SM	24.000	.690	.590	.
AUG	9.200	.630	.640	.620	.640
SEP	6.100	.440	.530	.370	.500

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	6.600	.370	.490	.460	.530
NOV	.550	.470	.500	.440	.670
DEC	.360 <T	.470 <T	.410 <T	.470 <T	.430 <T

## SELENIUM (UG/L )

DET'N LIMIT = 0.200 GUIDELINE = 10. (A1)

JAN	BDL	BDL	BDL	BDL	.980 <T	1.600 <T
FEB	1.400 <T	1.600 <T	.290 <T	BDL	1.300 <T	1.400 <T
MAR	2.100 <T	.720 <T	1.700 <T	1.500 <T	.600 <T	.660 <T
APR	BDL	BDL	BDL	BDL	.450 <T	1.300 <T
MAY	3.200 <T	1.300 <T	2.700 <T	2.300 <T	2.600 <T	BDL
JUN	BDL	BDL	BDL	BDL	BDL	1.400 <T
JUL	ISM	BDL	BDL	BDL	.	.
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	BDL	BDL	BDL	BDL
OCT	BDL	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	BDL	BDL	BDL	BDL	BDL	BDL

## STRONTIUM (UG/L )

DET'N LIMIT = .050 GUIDELINE = N/A

JAN	41.000	56.000	58.000	58.000	60.000	56.000
FEB	43.000	55.000	58.000	55.000	58.000	55.000
MAR	45.000	55.000	57.000	54.000	55.000	50.000
APR	38.000	53.000	52.000	50.000	53.000	51.000
MAY	39.000	54.000	54.000	54.000	54.000	55.000
JUN	41.000	55.000	57.000	54.000	56.000	56.000
JUL	ISM	56.000	59.000	58.000	.	.
AUG	40.000	53.000	52.000	52.000	53.000	54.000
SEP	44.000	59.000	56.000	55.000	57.000	55.000
OCT	49.000	64.000	63.000	63.000	63.000	64.000
NOV	55.000	74.000	70.000	72.000	69.000	70.000
DEC	45.000	44.000	51.000	44.000	54.000	55.000

## TITANIUM (UG/L )

DET'N LIMIT = .050 GUIDELINE = N/A

JAN	7.900	5.300	4.500	4.500	5.000	4.200
FEB	8.000	6.600	3.700	3.900	3.600	3.400
MAR	14.000	8.200	5.100	5.600	4.500	4.100
APR	8.400	5.700	3.200	3.400	3.200	2.900
MAY	16.000	10.000	8.500	8.300	7.800	8.100
JUN	16.000	14.000	13.000	14.000	13.000	13.000
JUL	ISM	8.100	4.000	3.500	.	.
AUG	8.500	8.100	6.400	5.700	5.900	6.000
SEP	12.000	6.700	4.500	4.800	4.700	4.800
OCT	11.000	9.300	6.200	6.200	5.900	5.600
NOV	10.000	6.700	3.700	4.600	4.000	3.700
DEC	7.200	6.900	4.000 <T	3.800 <T	4.100 <T	4.000 <T

## THALLIUM (UG/L )

DET'N LIMIT = .010 GUIDELINE = 13. (D4)

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	BDL	BDL	BDL	BDL	.030 <T
FEB	BDL	.050 <T	.020 <T	BDL	.050 <T
MAR	BDL	BDL	BDL	BDL	BDL
APR	BDL	BDL	BDL	BDL	.020 <T
MAY	.110 <T	.060 <T	BDL	.030 <T	.030 <T
JUN	.020 <T	.020 <T	BDL	.030 <T	BDL
JUL	ISM	BDL	BDL	BDL	.
AUG	.020 <T	.030 <T	BDL	.040 <T	.030 <T
SEP	BDL	BDL	BDL	BDL	.020 <T
OCT	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL	BDL
DEC	BDL	BDL	BDL	BDL	BDL

URANIUM (UG/L ) DET'N LIMIT = .020 GUIDELINE = 100.(B1)

JAN	.090 <T	BDL	BDL	BDL	.030 <T
FEB	.140 <T	.030 <T	BDL	.100 <T	BDL
MAR	.080 <T	.030 <T	BDL	.050 <T	BDL
APR	.150 <T	BDL	.040 <T	.030 <T	BDL
MAY	.220	.090 <T	.120 <T	.100 <T	.110 <T
JUN	.130 <T	.070 <T	.030 <T	.050 <T	.110 <T
JUL	ISM	.030 <T	.080 <T	.060 <T	.
AUG	.100 <T	BDL	BDL	BDL	BDL
SEP	.080 <T	BDL	BDL	BDL	.030 <T
OCT	.080 <T	BDL	BDL	BDL	BDL
NOV	.120 <T	.030 <T	BDL	BDL	.040 <T
DEC	.060 <T	BDL	BDL	BDL	BDL

VANADIUM (UG/L ) DET'N LIMIT = .050 GUIDELINE = N/A

JAN	.440 <T	.760	1.000	.820	1.200	.900
FEB	.480 <T	.860	.610	.810	1.000	.880
MAR	.560	.850	.770	.860	.900	.700
APR	.480 <T	.850	.820	.770	.870	.810
MAY	.490 <T	.970	.870	.930	.970	.930
JUN	.530	1.300	1.300	1.200	1.300	1.300
JUL	ISM	1.300	1.400	1.300	.	.
AUG	.520	1.000	.950	1.300	.850	.900
SEP	.530	.820	.760	.860	.940	.880
OCT	.600	.760	.760	.920	.780	.770
NOV	.620	.890	.790	.820	.760	.740
DEC	.410 <T	.830	.700	.790	.810	.840

ZINC (UG/L ) DET'N LIMIT = .001 GUIDELINE = 5000. (A3)

JAN	3.200	2.200	3.300	2.000	6.400	3.000
FEB	4.100	2.700	7.800	2.300	5.800	2.200
MAR	5.200	4.500	5.700	3.800	4.500	3.700
APR	5.900	3.000	4.600	2.700	3.700	2.600
MAY	5.500	3.700	6.200	4.400	3.200	3.300

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	4.900	3.700	5.300	5.300	8.900
JUL	1.8M	1.800	5.200	2.200	.
AUG	4.500	3.100	5.200	3.300	4.700
SEP	4.500	1.900	3.200	1.800	4.700
OCT	4.300	3.500	4.600	2.800	6.300
NOV	2.700	1.900	6.700	2.900	23.000
DEC	3.300	2.300	8.700	3.200	6.300

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

WATER TREATMENT PLANT DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2		
		STANDING	FREE FLOW	STANDING	FREE FLOW	
CHLOROAROMATICS						
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 1900 (D4)		
JAN	BDL	BDL	.	BDL	.	
FEB	BDL	2.000 <T	.	2.000 <T	.	
MAR	BDL	BDL	.	BDL	.	
APR	BDL	BDL	.	BDL	.	
MAY	BDL	BDL	.	BDL	.	
JUN	BDL	BDL	.	BDL	.	
JUL	BDL	BDL	.	BDL	.	
AUG	BDL	BDL	.	BDL	.	
SEP	BDL	BDL	.	BDL	.	
OCT	BDL	BDL	.	BDL	.	
NOV	BDL	BDL	.	BDL	.	
DEC	BDL	BDL	.	BDL	.	

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
PESTICIDES & PCB					
ALPHA BHC (NG/L)	)	DET'N LIMIT = 1.000		GUIDELINE = 700 (G)	
JAN	1.000 <T	BDL	.	1.000 <T	.
FEB	1.000 <T	1.000 <T	.	2.000 <T	.
MAR	2.000 <T	BDL	.	1.000 <T	.
APR	1.000 <T	1.000 <T	.	1.000 <T	.
MAY	BDL	BDL	.	BDL	.
JUN	BDL	BDL	.	BDL	.
JUL	BDL	BDL	.	BDL	.
AUG	BDL	BDL	.	BDL	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	1.000 <T
DEC	1.000 <T	BDL	.	1.000 <T	1.000 <T

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
PHENOLICS					
PHENOLICS (UG/L)		DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)	
JAN	3.800	3.600	.	.	.
FEB	3.600	2.200	.	.	.
MAR	4.800	3.400	.	.	.
APR	4.000	3.000	.	.	.
MAY	1.000	1.000	.	.	.
JUN	2.600	1.600	.	.	.
JUL	2.600	2.200	.	.	.
AUG	2.400	2.000	.	.	.
SEP	4.800	2.600	.	.	.
OCT	2.600	5.600	.	.	.
NOV	1.800	1.200	.	.	.
DEC	.600 <T	.400 <T	.	.	.

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
VOLATILES					
BENZENE (UG/L)	)		DET'N LIMIT = .050	GUIDELINE = 5.0 (B1)	
JAN	BDL	BDL	.	BDL	.
FEB	BDL	BDL	.	BDL	.
MAR	BDL	BDL	.	BDL	.
APR	BDL	BDL	.	BDL	.
MAY	BDL	BDL	.	BDL	.
JUN	BDL	BDL	.	BDL	.
JUL	BDL	BDL	.	.050 <T	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	.
DEC	BDL	BDL	.	BDL	.
TOLUENE (UG/L)	)		DET'N LIMIT = .050	GUIDELINE = 24.0 (B4)	
JAN	BDL	BDL	.	.150 <T	.
FEB	.050 <T	BDL	.	BDL	.
MAR	BDL	.050 <T	.	BDL	.
APR	BDL	BDL	.	.050 <T	.
MAY	.100 <T	.100 <T	.	.100 <T	.
JUN	BDL	BDL	.	.200 <T	.
JUL	BDL	.100 <T	.	.100 <T	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	.050 <T	.
NOV	BDL	.050 <T	.	BDL	.
DEC	BDL	BDL	.	BDL	.
ETHYLBENZENE (UG/L)	)		DET'N LIMIT = .050	GUIDELINE = 2.4 (B4)	
JAN	.100 <T	.050 <T	.	.100 <T	.
FEB	.150 <T	.050 <T	.	.050 <T	.
MAR	.050 <T	BDL	.	.050 <T	.
APR	BDL	BDL	.	BDL	.
MAY	.050 <T	.050 <T	.	.050 <T	.
JUN	BDL	BDL	.	.100 <T	.
JUL	.050 <T	.100 <T	.	.050 <T	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	.
DEC	BDL	BDL	.	BDL	.
M-XYLENE (UG/L)	)		DET'N LIMIT = .100	GUIDELINE = 300 (B4)	
JAN	BDL	BDL	.	BDL	.
FEB	.100 <T	BDL	.	BDL	.
MAR	BDL	BDL	.	BDL	.

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
APR	BDL	BDL	.	BDL	.
MAY	BDL	.100 <T	.	.100 <T	.
JUN	BDL	BDL	.	BDL	.
JUL	BDL	BDL	.	BDL	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	.
DEC	BDL	BDL	.	BDL	.

O-XYLENE (UG/L ) DET'N LIMIT = .050 GUIDELINE = 300 (B4)

JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	.050 <T
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	.050 <T	.050 <T	.	BDL	.	BDL
JUN	BDL	BDL	.	.050 <T	.	BDL
JUL	.050 <T	.100 <T	.	.050 <T	.	.
AUG	BDL	BDL	.	IU	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL

STYRENE (UG/L ) DET'N LIMIT = .050 GUIDELINE = 46.5 (D2)

JAN	.650 UCS	.300 <T	.	.100 <T	.	BDL
FEB	.650	.250 <T	.	BDL	.	.450 <T
MAR	.450 <T	BDL	.	.400 <T	.	.350 <T
APR	BDL	BDL	.	BDL	.	.050 <T
MAY	.250 <T	.250 <T	.	.300 <T	.	.200 <T
JUN	BDL	.250 <T	.	.500 <T	.	.150 <T
JUL	.250 <T	.300 <T	.	.250 <T	.	.
AUG	.050 <T	.050 <T	.	IU	.	BDL
SEP	BDL	.050 <T	.	.100 <T	.	BDL
OCT	BDL	.100 <T	.	.100 <T	.	.100 <T
NOV	BDL	.300 <T	.	.300 <T	.	.100 <T
DEC	BDL	BDL	.	.150 <T	.	.050 <T

CHLOROFORM (UG/L ) DET'N LIMIT = .100 GUIDELINE = 350 (A1+)

JAN	.300 <T	76.900	.	69.100	.	74.900
FEB	.900 <T	37.300	.	38.200	.	45.600
MAR	BDL	35.000	.	35.400	.	40.000
APR	.200 <T	86.400	.	66.600	.	63.400
MAY	.200 <T	76.000	.	70.000	.	86.000
JUN	.400 <T	138.000	.	107.000	.	120.000
JUL	.500 <T	205.000	.	189.000	.	.
AUG	BDL	170.000	.	IU	.	160.000

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	.200 <T	156.000	.	147.500	.
OCT	.200 <T	114.000	.	114.800	.
NOV	.200 <T	111.000	.	75.100	.
DEC	.300 <T	97.200	.	69.700	.
111, TRICHLOROETHANE (UG/L)		DET'N LIMIT = .020 GUIDELINE = 200 (D1)			
JAN	BDL	BDL	.	BDL	.
FEB	BDL	.020 <T	.	BDL	.
MAR	BDL	BDL	.	.020 <T	.
APR	BDL	BDL	.	BDL	.
MAY	BDL	BDL	.	BDL	.
JUN	BDL	BDL	.	BDL	.
JUL	BDL	BDL	.	BDL	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	.
DEC	BDL	BDL	.	BDL	.
DICHLOROBROMOMETHANE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 350 (A1+)			
JAN	BDL	1.350	.	1.100	.
FEB	BDL	1.000	.	.900	.
MAR	BDL	.800	.	.700 <T	.
APR	BDL	.900	.	1.000	.
MAY	BDL	1.300	.	1.000	.
JUN	BDL	1.500	.	1.300	.
JUL	BDL	3.300	.	2.500	.
AUG	BDL	2.900	.	IU	.
SEP	BDL	3.000	.	2.500	.
OCT	BDL	2.550	.	2.200	.
NOV	BDL	2.050	.	1.900	.
DEC	BDL	2.150	.	1.450	.
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = .100 GUIDELINE = 350 (A1+)			
JAN	BDL	BDL	.	BDL	.
FEB	BDL	BDL	.	BDL	.
MAR	BDL	BDL	.	.100 <T	.
APR	BDL	BDL	.	BDL	.
MAY	BDL	BDL	.	BDL	.
JUN	BDL	BDL	.	BDL	.
JUL	BDL	.200 <T	.	.100 <T	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	.
DEC	BDL	BDL	.	BDL	.

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM OTTAWA WSS (LEMIEUX ISLAND) 1989

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW	TREATED	SITE 1		SITE 2	
		STANDING	FREE FLOW	STANDING	FREE FLOW
T-CHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 10.0 (C2)	
JAN	BDL	BDL	.	BDL	.
FEB	BDL	BDL	.	BDL	.
MAR	BDL	BDL	.	BDL	.
APR	BDL	BDL	.	BDL	.
MAY	BDL	BDL	.	BDL	.
JUN	BDL	BDL	.	BDL	.
JUL	BDL	BDL	.	BDL	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	.050 <T	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	.
DEC	BDL	BDL	.	BDL	.
1,4 DICHLOROBENZENE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 5.0 (B1)	
JAN	.300 <T	BDL	.	BDL	.
FEB	.100 <T	BDL	.	BDL	.
MAR	BDL	BDL	.	BDL	.
APR	BDL	BDL	.	BDL	.
MAY	BDL	BDL	.	BDL	.
JUN	BDL	BDL	.	BDL	.
JUL	BDL	BDL	.	BDL	.
AUG	BDL	BDL	.	IU	.
SEP	BDL	BDL	.	BDL	.
OCT	BDL	BDL	.	BDL	.
NOV	BDL	BDL	.	BDL	.
DEC	BDL	BDL	.	BDL	.
TOTL TRIHALOMETHANES (UG/L)		DET'N LIMIT = .500		GUIDELINE = 350 (A1)	
JAN	BDL	78.250	.	70.200	.
FEB	.900 <T	38.300	.	39.100	.
MAR	BDL	35.800	.	36.200	.
APR	BDL	87.300	.	67.600	.
MAY	BDL	77.300	.	71.000	.
JUN	BDL	139.500	.	108.300	.
JUL	.500 <T	208.500	.	191.600	.
AUG	BDL	172.900	.	IU	.
SEP	BDL	159.000	.	150.000	.
OCT	BDL	116.550	.	117.000	.
NOV	BDL	113.050	.	77.000	.
DEC	BDL	99.350	.	71.150	.

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

Table 6

<u>SCAN/PARAMETER</u>	<u>UNIT</u>	<u>DETECTION</u>		
		<u>LIMIT</u>	<u>GUIDELINE</u>	
<b>BACTERIOLOGICAL</b>				
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0	(A1)
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML	(A1)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL	(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A	
<b>CHLOROAROMATICS</b>				
HEXACHLOROBUTADIENE	NG/L	1.000	450.	(D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000	(I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000	(I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000	(I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000	(I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000	(D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000	(D4)
HEXACHLOROBENZENE	NG/L	1.0	10.	(C1)
HEXACHLOROETHANE	NG/L	1.000	1900.	(D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A	
PENTACHLOROBENZENE	NG/L	1.000	74000	(D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A	
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A	
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A	
<b>CHLOROPHENOLS</b>				
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A	
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A	
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A	
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000	(D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	2000.	(B4)
PENTACHLOROPHENOL	NG/L	50.	30000.	(B4)
<b>CHEMISTRY (FLD)</b>				
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A	
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A	
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A	
FIELD PH	DMSNLESS	N/A	6.5-8.5	(A4)
FIELD TEMPERATURE	°C	N/A	<15	°C(A1)
FIELD TURBIDITY	FTU	N/A	1.0	(A1)
<b>CHEMISTRY (LAB)</b>				
ALKALINITY	MG/L	.200	30-500	(A4)
CALCIUM	MG/L	.100	100.	(F2)
CYANIDE	MG/L	.001	.20	(A1)
CHLORIDE	MG/L	.200	250.	(A3)
COLOUR	TCU	.5	5.0	(A3)
CONDUCTIVITY	UMHO/CM	1.	400.	(F2)
FLUORIDE	MG/L	.01	2.4	(A1)
HARDNESS	MG/L	.50	80-100	(A4)
MAGNESIUM	MG/L	.05	30.	(F2)

<u>SCAN/PARAMETER</u>	<u>UNIT</u>	<u>DETECTION LIMIT</u>	<u>GUIDELINE</u>
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5 (A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40 (F2)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)

#### **METALS**

ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	10. (F3)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)

#### **PHENOLICS**

PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
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#### **PESTICIDES & PCB**

ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE (LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	900000. (B1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE (THIODAN SULPHATE)	NG/L	4.0	N/A
HEPTACHLOR EPOXIDE	NG/L	1.0	3000. (A1)

<u>SCAN/PARAMETER</u>	<u>UNIT</u>	<u>DETECTION LIMIT</u>	<u>GUIDELINE</u>
HEPTACHLOR	NG/L	1.0	3000. (A1)
METOLACHLOR	NG/L	500.	50000. (B3)
MIREX	NG/L	5.0	N/A
OXYCHLORDANE	NG/L	2.0	N/A
O, P-DDT	NG/L	5.0	30000. (A1)
PCB	NG/L	20.0	3000. (A2)
O, P-DDD	NG/L	5.0	N/A
PPDDE	NG/L	1.0	30000. (A1)
PPDDT	NG/L	5.0	30000. (A1)
ATRATONE	NG/L	50.	N/A
ALACHLOR	NG/L	500.	35000. (D2)
PROMETONE	NG/L	50.	52500. (D3)
PROPAZINE	NG/L	50.	16000. (D2)
PROMETRYNE	NG/L	50.	1000. (B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000. (B2)
SIMAZINE	NG/L	50.	10000. (B3)

#### POLYAROMATIC HYDROCARBONS

PHENANTHRENE	NG/L	10.0	N/A
ANTHRACENE	NG/L	1.0	N/A
FLUORANTHENE	NG/L	20.0	42000. (D4)
PYRENE	NG/L	20.0	N/A
BENZO(A)ANTHRACENE	NG/L	20.0	N/A
CHRYSENE	NG/L	50.0	N/A
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A
BENZO(E)PYRENE	NG/L	50.0	N/A
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A
PERYLENE	NG/L	10.0	N/A
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A
BENZO(A)PYRENE	NG/L	5.0	10. (B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A
BENZO(B)CHRYSENE	NG/L	2.0	N/A
CORONENE	NG/L	10.0	N/A

#### SPECIFIC PESTICIDES

TOXAPHENE	NG/L	N/A	5000. (A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	200000. (B4)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000. (A1)
2,4-DICHLOROPHENOXYBUTYRIC ACID	NG/L	200.	18000. (B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A
DICAMBA	NG/L	100.	120000. (B1)
PICLORAM	NG/L	100.	190000. (B3)
SILVEX (2,4,5-TP)	NG/L	50.	10000. (A1)
DIAZINON	NG/L	20.	20000. (B1)
DICHLOROVOS	NG/L	20.	N/A
DURSBAN	NG/L	20.	N/A
ETHION	NG/L	20.	35000. (G)
GUTHION(AZINPHOSMETHYL)	NG/L	N/A	20000. (B1)
MALATHION	NG/L	20.	190000. (B1)
MEVINPHOS	NG/L	20.	N/A
METHYL PARATHION	NG/L	50.	7000. (A1)
METHYLTRITHION	NG/L	20.	N/A
PARATHION	NG/L	20.	50000. (B1)

<u>SCAN/PARAMETER</u>	<u>DETECTION UNIT</u>	<u>LIMIT</u>	<u>GUIDELINE</u>
PHORATE (THIMET)	NG/L	20.	2000. (B3)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENONYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	90000. (B1)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	90000. (B1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)

### VOLATILES

BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHYLENE DIBROMIDE	UG/L	.05	.05 G)
METHYLENE CHLORIDE	UG/L	.500	50. (B1)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	70. (D5)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (B1)
1,2-DICHLOROPROPANE	UG/L	.050	6.0 (D5)
TRICHLOROETHYLENE	UG/L	.100	50. (B1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	60. (D5)
1,4-DICHLOROBENZENE	UG/L	.100	1.0 (B4)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	3.0 (B4)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	140. (D5)



